IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application

Applicant(s): Erik Busking
Case: 11
Serial No.: 10/608,597
Filing Date: June 27, 2003
Group: 2618
Examiner: Tuan A. Tran

Title: Filter Switching System and Method

REPLY BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellant hereby replies to the Examiner's Answer, mailed March 21, 2007 (referred to hereinafter as "the Examiner's Answer"), in an Appeal of the final rejection of claims 1-9 in the above-identified patent application.

REAL PARTY IN INTEREST

A statement identifying the real party in interest is contained in Appellant's Appeal Brief.

RELATED APPEALS AND INTERFERENCES

A statement identifying related appeals is contained in Appellant's Appeal Brief.

STATUS OF CLAIMS

A statement identifying the status of the claims is contained in Appellant's Appeal Brief.

STATUS OF AMENDMENTS

A statement identifying the status of the amendments is contained in Appellant's Appeal Brief.

SUMMARY OF CLAIMED SUBJECT MATTER

A Summary of the Invention is contained in Appellant's Appeal Brief.

STATEMENT OF GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

A statement identifying the grounds of rejection to be reviewed on appeal is contained in Appellant's Appeal Brief.

CLAIMS APPEALED

A copy of the appealed claims is contained in an Appendix of Appellant's Appeal Brief.

ARGUMENT

The Examiner objects to claim 9 due to an indicated informality.

Appellant proposes to address the Examiner's objection upon resolution of the appeal.

The Examiner has asserted that the circuit disclosed in FIG. 5A of Hornak comprises a first mixer circuit 123, 127, 133... having input ports configured to receive a first communication signal and shift the frequency range of the first communication signal to a first frequency range; and a second mixer circuit 123, 127... having input ports configured to receive the first communication signal and shift the frequency range of the first communication signal to a second frequency range; and wherein when one of the mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal (FIGS. 5A, 12, and 18; col. 9, lines 36-65; col. 12, lines 29-64; col. 18, line 44, to col. 19, line 10).

First, Appellants maintain that a person of ordinary skill in the art would recognize that the circuit disclosed in FIG. 5A of Hornak is a ***single*** *mixer circuit* that has a clock source with a selectable phase. The independent claims of the present invention require ***two*** *mixer circuits*. In addition, the first mixer circuit recited in the independent claims has input ports and the second mixer circuit recited in the independent claims has input ports; thus, there are *two sets of input ports*. The circuit of FIG. 5A comprises a *single set of input ports*. Furthermore, the first mixer circuit recited in the independent claims is configured to shift the frequency range of the first communication signal to a *first frequency range* and the second mixer circuit recited in the independent claims is configured to shift the frequency range of the first communication signal to a *second frequency range*. The circuit of FIG. 5A is configured to shift the frequency range of the input to ***only*** *a first frequency range*. Finally, since the circuit of FIG. 5A comprises a ***single*** *output*, the circuit of FIG. 5A cannot be configured such that first and second filter circuits can each be ***configured*** to receive *a signal from said first* ***and*** *second mixer circuits,* as required by independent claim 1, and cannot be configured such that each of said filters receives a "signal from a ***corresponding*** *mixer circuit*," as required by independent claim 6.

Independent claim 1 requires a ***first*** *mixer circuit* disposed within a high frequency integrated circuit *having input ports* configured to receive a first communication

signal and shift the frequency range of said communication signal to a ***first frequency range***; a ***second** mixer circuit* disposed within said high frequency integrated circuit *having input ports* configured to receive said first communication signal and shift the frequency range of said first communication signal to a ***second** frequency range*; first and second filter circuits *each configured to receive a signal from said first and second mixer circuits*, when a ***corresponding** one of said mixer circuits is activated*; and wherein ***when one of said mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal***. Independent claim 6 requires receiving a communication signal via a first amplifier and providing said communication signal to a ***plurality** of mixing circuits* for shifting the frequency range of said communication signal; providing an activation signal generated by an activation circuit that ***selectively activates any one of said mixer circuits while remaining mixer circuits does not generate an output voltage signal***; and coupling a plurality of filter circuits to said mixer circuits such that *each of said filter circuits is configured to* ***receive a signal from a corresponding mixer circuit***, when said corresponding mixing circuit is activated and to dispense a signal to a low frequency integrated circuit.

Thus, Hornak et al. and Lindqvist et al., alone or in any combination, do not disclose or suggest a first mixer circuit disposed within a high frequency integrated circuit having input ports configured to receive a first communication signal and shift the frequency range of said communication signal to a first frequency range; a second mixer circuit disposed within said high frequency integrated circuit having input ports configured to receive said first communication signal and shift the frequency range of said first communication signal to a second frequency range; first and second filter circuits each configured to receive a signal from said first and second mixer circuits, when a corresponding one of said mixer circuits is activated; and wherein when one of said mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal, as required by independent claim 1, and do not disclose or suggest receiving a communication signal via a first amplifier and providing said communication

signal to a plurality of mixing circuits for shifting the frequency range of said communication signal; providing an activation signal generated by an activation circuit that selectively activates any one of said mixer circuits while remaining mixer circuits does not generate an output voltage signal; and coupling a plurality of filter circuits to said mixer circuits such that each of said filter circuits is configured to receive a signal from a corresponding mixer circuit, when said corresponding mixing circuit is activated and to dispense a signal to a low frequency integrated circuit, as required by independent claim 6.

Conclusion

The rejections of the cited claims under section 103 in view of Hornak et al. and Lindqvist et al., alone or in any combination, are therefore believed to be improper and should be withdrawn. The remaining rejected dependent claims are believed allowable for at least the reasons identified above with respect to the independent claims.

The attention of the Examiner and the Appeal Board to this matter is appreciated

Respectfully,

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Date: May 17, 2007

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APPENDIX

1. A communication system with variable filter bandwidth comprises:

a first mixer circuit disposed within a high frequency integrated circuit having input ports configured to receive a first communication signal and shift the frequency range of said communication signal to a first frequency range;

a second mixer circuit disposed within said high frequency integrated circuit having input ports configured to receive said first communication signal and shift the frequency range of said first communication signal to a second frequency range;

an amplifier coupled to said first and second mixer circuits for providing said first communication signal to said first and second mixer circuits;

an activation circuit coupled to the first and second mixer circuits so as to provide an activation signal that selectively activates any one of the mixer circuits;

first and second filter circuits each configured to receive a signal from said first and second mixer circuits, when a corresponding one of said mixer circuits is activated and to provide a signal to a low frequency integrated circuit; and

wherein when one of said mixer circuits is activated, the remaining mixer circuit does not generate an output voltage signal.

2. The invention in accordance with claim 1 wherein said first and second frequency range are substantially the same.

3. The invention in accordance with claim 1 wherein said filter circuits are bandpass filters.

4. The invention in accordance with claim 3 wherein the frequency characteristics of said bandpass filters are different from each other.

5. The invention in accordance with claim 4, wherein the termination impedance of the output stage of each of said mixer circuits substantially matches the termination impedance of the input stage of each one of said bandpass filters.

6. In a communication system, a method for routing a signal provided by a mixer circuit disposed in a high frequency integrated circuit to one of a plurality of filter circuits, said method comprising the steps of:

receiving a communication signal via a first amplifier and providing said communication signal to a plurality of mixing circuits for shifting the frequency range of said communication signal;

providing an activation signal generated by an activation circuit that selectively activates any one of said mixer circuits while remaining mixer circuits does not generate an output voltage signal; and

coupling a plurality of filter circuits to said mixer circuits such that each of said filter circuits is configured to receive a signal from a corresponding mixer circuit, when said corresponding mixing circuit is activated and to dispense a signal to a low frequency integrated circuit.

7. The method in accordance with claim 6 wherein said step of shifting the frequency range further comprises the step of shifting the frequency range via each mixer circuit to substantially the same frequency range.

8. The method in accordance with claim 7 further comprising the step of bandpass filtering said signal provided by said activated mixer circuit via a corresponding one of said filter circuits.

9. The invention in accordance with claim 8, further comprising the step of substantially matching the termination impedance of the output stage of each of said mixer circuits with the termination impedance of the input stage of each one of said bandpass filters

EVIDENCE APPENDIX

There is no evidence submitted pursuant to § 1.130, 1.131, or 1.132 or entered by the Examiner and relied upon by appellant.

RELATED PROCEEDINGS APPENDIX

There are no known decisions rendered by a court or the Board in any proceeding identified pursuant to paragraph (c)(1)(ii) of 37 CFR 41.37.